

L Number	Hits	Search Text	DB	Time stamp
1	19	(coherence adj2 collapse) with pump\$3	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/23 12:29
-	4	(dispers\$ near2 compensat?) same raman		2003/07/17 10:50
-	12	(variable near2 switch\$3 ) and raman	USPAT; EPO; JPO; DERWENT; USOCR	2003/07/09 09:19
-	9	pump\$3 and ((variable near2 switch\$3 ) and raman)	USPAT; EPO; JPO; DERWENT; USOCR	2003/07/09 09:19
-	842586	amplif\$4	USPAT; EPO; JPO; DERWENT; USOCR	2003/07/13 16:45
-	924	raman near3 amplif\$3	USPAT; EPO; JPO; DERWENT; USOCR	2003/07/13 16:46
-	647	((pump\$3 with pump\$3) and raman) and (raman near3 amplif\$3)	USPAT; EPO; JPO; DERWENT; USOCR	2003/07/13 16:46
-	126	((pump\$3 with pump\$3) and raman) and (raman near3 amplif\$3) and 359/334.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/07/13 16:47
-	126	((pump\$3 with pump\$3) and raman) and (((pump\$3 with pump\$3) and raman) and (raman near3 amplif\$3) and 359/334.ccls.)	USPAT; EPO; JPO; DERWENT; USOCR	2003/07/13 16:47
-	4475760	pump\$3 (block\$3 or filter\$3)	USPAT; EPO; JPO; DERWENT; USOCR	2003/08/25 09:58
-	1070936	mirror or reflect\$2	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/17 09:34
-	1	wavelength adj variable adj type adj filter	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/17 09:39
-	1326	Raman with pump\$3	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:44
-	1330818	mirror or reflect\$3 or grating	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:45
-	727	(Raman with pump\$3) and (mirror or reflect\$3 or grating)	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:45
-	11171	pump\$3 near3 (wavelength or frequenc\$3)	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:46
-	475	((Raman with pump\$3) and (mirror or reflect\$3 or grating)) and (pump\$3 near3 (wavelength or frequenc\$3))	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:46
-	18327	(single) near3 pump	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:47

-	129	((Raman with pump\$3) and (mirror or reflect\$3 or grating)) and (pump\$3 near3 (wavelength or frequenc\$3))) and ((single) near3 pump)	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:47
-	54	coherence near2 collapse	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/21 14:47
-	4	((Raman with pump\$3) and (mirror or reflect\$3 or grating)) and (pump\$3 near3 (wavelength or frequenc\$3))) and ((single) near3 pump) and (coherence near2 collapse)	USPAT; EPO; JPO; DERWENT; USOCR	2003/11/23 12:27

**Current session 23/11/2003**

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23/11/03 20\*09\*36

Last connection: 19/11/03 15\*33\*22

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**Query/Command : file cl esq3**

QUESTEL - Time in minutes : 0,70

The cost estimation below is based on Questel's  
standard price list

Estimated cost :	0.65 USD
Cost estimated for the last database search :	0.65 USD
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Selected file: INSPEC

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Sept 1, 2003 - Charge for MEM. See INFO MEM

Selected file: JAPIO

COPYRIGHT(C) JAPANESE PATENT OFFICE (JPO) - Published unexamined Japanese  
patent applications from December 1976 thru JULY 2003 (PD=2003-07).  
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2003-07 images available soon

Selected file: DWPX

Welcome to Derwent World Patent Index, (c) Derwent Information Ltd  
UP (basic), UE(equiv), UA (poly), UB (chem) : updates thru 2003-75  
US Patent Applications are in 11 digit format: USYYYYNNNNNNN/pn  
New: Derwent Manual Code Definition Look-up File - see INFO DWPIMC  
Last database update : 2003/11/21 (YYYY/MM/DD)

Cluster : ESQ3

Databases : INSPEC, JAPIO, DWPX

Search statement 1

**Query/Command : (coherence 2d collapse) s pump???**

INSPEC	7
JAPIO	0

Session finished: 23 NOV 2003 Time 20:18:55

INSPEC - Time in minutes : 3,73  
The cost estimation below is based on Questel's  
standard price list

	Estimated cost :	5.59 USD
Records displayed and billed :	9	
	Estimated cost :	23.40 USD
Cost estimated for the last database search :		28.99 USD
Estimated total session cost :		29.64 USD

JAPIO - Time in minutes : 1,56  
The cost estimation below is based on Questel's  
standard price list

	Estimated cost :	2.99 USD
Cost estimated for the last database search :		2.99 USD
Estimated total session cost :		32.63 USD

DWPX - Time in minutes : 3,84  
The cost estimation below is based on Questel's  
standard price list

	Estimated cost :	11.28 USD
Records displayed and billed :	4	
	Estimated cost :	3.14 USD
Cost estimated for the last database search :		14.42 USD
Estimated total session cost :		47.05 USD

Your session will be retained for 2 hours.

QUESTEL.ORBITE thanks you. Hope to hear from you again soon.

INSPEC	654
JAPIO	143
DWPX	449

**\*\* SS 2 : Results 1246**

Search statement 3

Query/Command : coherence 3d collapse

INSPEC	120
JAPIO	0
DWPX	7

**\*\* SS 3 : Results 127**

Search statement 4

Query/Command : 2 and 3

INSPEC	0
JAPIO	0
DWPX	0

**\*\* SS 4 : Results 0**

Search statement 5

Query/Command : his

Databases : INSPEC, JAPIO, DWPX

```
SS Results
INSPEC      7
JAPIO       0
DWPX        2
1           9 (COHERENCE 2D COLLAPSE) S PUMP???
INSPEC      654
JAPIO       143
DWPX        449
2          1246 RAMAN 3D AMPLIF???
INSPEC      120
JAPIO        0
DWPX         7
3          127 COHERENCE 3D COLLAPSE
INSPEC        0
JAPIO         0
DWPX         0
4           0 2 AND 3
```

Search statement 5

Query/Command : nbr /aun zarris ga

**\*\* SS 1 : Results 9**

Search statement 2

Query/Command : prt 1-9 ti

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1 / 9 INSPEC (1 / 7) - ©INSPEC

**TI** - Investigation of the effect of injection locking between pump lasers on a redundant pumping scheme for erbium-doped fiber amplifiers.

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2 / 9 INSPEC (2 / 7) - ©INSPEC

**TI** - Regular dynamics of low-frequency fluctuations in external cavity semiconductor lasers.

---

3 / 9 INSPEC (3 / 7) - ©INSPEC

**TI** - L-I characteristics of fiber Bragg grating stabilized 980-nm pump lasers.

---

4 / 9 INSPEC (4 / 7) - ©INSPEC

**TI** - Emission of optically coupled semiconductor lasers.

---

5 / 9 INSPEC (5 / 7) - ©INSPEC

**TI** - Detuning characteristics of fiber Bragg grating stabilized 980 nm pump lasers.

---

6 / 9 INSPEC (6 / 7) - ©INSPEC

**TI** - Experimental control of a chaotic semiconductor laser.

---

7 / 9 INSPEC (7 / 7) - ©INSPEC

**TI** - Coherent high density excitonic states in GaAs quantum wells.

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8 / 9 DWPX (1 / 2) - ©Thomson Derwent - image

**TI** - Semiconductor **pump** source e.g. fiber laser for repeater fiber links, has optical coupler disposed selectively at fixed distance and reflectivity from gain component for **coherence collapse** operation

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9 / 9 DWPX (2 / 2) - ©Thomson Derwent - image

**TI** - Optical erbium doped fibre amplifier apparatus for wavelength division multiplexing - has pump lasers having at least partially overlapping resonators and gain section located external to resonators

Query/Command : prt 8 9 fu

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8 / 9 DWPX (1 / 2) - ©Thomson Derwent - image

**AN** - 2000-646922 [62]

**XP** - N2000-479446

**TI** - Semiconductor **pump** source e.g. fiber laser for repeater fiber links, has optical coupler disposed selectively at fixed distance and reflectivity from gain component for **coherence collapse** operation

**DC** - U12 V07 V08

**PA** - (SDLS-) SDL INC  
(JDSU-) JDS UNIPHASE CORP

**IN** - HAGBERG M; LANG RJ; O'BRIEN S; VAIL E; ZIARI M

**NP** - 8

**NC** - 24

**PN** - WO200048276 A2 20000817 DW2000-62 H01S-005/00 Eng 44p \*  
AP: 2000WO-US02561 20000201  
DSNW: CA CN JP KR  
DSRW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

EP1145392 A2 20011017 DW2001-69 H01S-005/00 Eng  
FD: Based on WO200048276  
AP: 2000EP-0935807 20000201; 2000WO-US02561 20000201  
DSR: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

KR2001102076 A 20011115 DW2002-31 H01S-005/10  
AP: 2001KR-0710190 20010811

CN1346527 A 20020424 DW2002-51 H01S-005/10  
AP: 2000CN-0806032 20000201

EP1145392 B1 20030115 DW2003-06 H01S-005/14 Eng  
FD: Based on WO200048276  
AP: 2000EP-0935807 20000201; 2000WO-US02561 20000201  
DSR: DE FR GB NL

DE60001211 E 20030220 DW2003-22 H01S-005/14  
FD: Based on EP1145392; Based on WO200048276  
AP: 2000DE-6001211 20000201; 2000EP-0935807 20000201;  
2000WO-US02561 20000201

US6525872 B1 20030225 DW2003-23 H01S-003/00

AP: 1999US-P120012 19990211; 1999US-P129905 19990416;  
1999US-0313741 19990518; 1999US-0375687 19990817

JP2003512717 W 20030402 DW2003-25 H01S-003/094 60p

FD: Based on WO200048276

AP: 2000JP-0599104 20000201; 2000WO-US02561 20000201

**PR** - 1999US-0375687 19990817; 1999US-P120012 19990211; 1999US-P129905 19990416; 1999US-0313741 19990518

**IC** - H01S-003/00 H01S-003/094 H01S-005/00 H01S-005/10 H01S-005/14  
C12N-005/10 H01M-004/04 H01S-003/06 H01S-003/067 H01S-003/0941  
H01S-003/10 H01S-005/068 H04B-010/00 H04B-010/12

**AB** - WO200048276 A

NOVELTY - An optical coupler (124) couples light from the front surface of a gain component into one end of an optical fiber (122). The optical coupler is disposed selectively at predetermined distance and reflectivity from the gain component to enable coherence collapse operation.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) a semiconductor light source;

(b) an optical fiber system;

(c) and a laser device.

USE - For repeater fiber link and underwater communication link in optical fiber communication system.

ADVANTAGE - Provides high power laser which can deliver high power, stable power and stable spectral content and overcomes power limitation by parasitic non linear process. Uses optical amplifiers which output strong signals for reducing error to acceptable level. Permits stabilization or tuning of the flared amplifier section. Optimizes desired characteristics of the system, reduces depolarization effects, increases spectrum stability of pump light and provides limited diffraction high power for pumping fiber amplifiers.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the optical fiber communication system.

Optical fiber 122

Optical coupler 124(Dwg.1/14)

**MC** - EPI: U12-A01B1 V07-K01C2 V08-A04A

**UP** - 2000-62

**UE** - 2001-69; 2002-31; 2002-51; 2003-06; 2003-22; 2003-23; 2003-25

**UE4** - 2001-11; 2002-05; 2002-08; 2003-01; 2003-04



9 / 9 DWPX (2 / 2) - ©Thomson Derwent - image

AN - 1998-168579 [15]  
 XR - 1996-464410  
 XP - N1998-133875  
 TI - Optical erbium doped fibre amplifier apparatus for wavelength division multiplexing - has pump lasers having at least partially overlapping resonators and gain section located external to resonators  
 DC - P81 V07 V08 W02  
 AW - EDFA  
 PA - (LUCENT ) LUCENT TECHNOLOGIES INC  
 IN - ERDOGAN T; GILES CR; MIZRAHI V  
 NP - 1  
 NC - 1  
 PN - US5721636 A 19980224 DW1998-15 H01S-003/30 8p \*  
 FD: Cont of US5563732  
 AP: 1994US-0178142 19940106; 1996US-0721639 19960926  
 PR - 1994US-0178142 19940106; 1996US-0721639 19960926  
 IC - H01S-003/30 G02B-006/26  
 AB - US5721636 A  
 The apparatus includes at least one section of fibre which exhibits gain when excited by an optical pump signal, multiple pump lasers, and a coupler. The lasers generate the pump signal as a combination of several pump signals from the multiple lasers.  
 The coupler couples the pump signals to the at least one gain section, the pump lasers having at least partially overlapping resonators. The gain section is located external to the resonators and the coupler is located at least partially within the resonators.  
 USE - For pumping EDFA at 980 nm.  
 ADVANTAGE - Stability of **pump** laser for activating erbium amplifier is enhanced by grating which results in laser operation in **coherence collapse** regime. (Dwg.2/8)  
 MC - EPI: V07-K01C2 V08-A02B W02-C04A5A W02-C04B1A W02-C04B4B  
 UP - 1998-15

Query/Command : his

Databases : INSPEC, JAPIO, DWPX

SS	Results	
	INSPEC	7
	JAPIO	0
	DWPX	2
1	9	(COHERENCE 2D COLLAPSE) S PUMP???

Search statement 2

Query/Command : raman 3d amplif???

<QOerror code='2' scode='1' num='6'><QOerrormsg>AUN</QOerrormsg><QOerrormsg>You have

Query/Command : nbr /aun zarris ga

1	1	ZARRINKAR PP
2	2	ZARRINKOUB H
3	1	ZARRINKOUB K
4	1	ZARRINTAJ BORNAEE
5	9	ZARRIS G
6	3	ZARRO D
7	1	ZARRO DA
8	32	ZARRO DM
9	1	ZARRO MS
10	1	ZARROP M
11	61	ZARROP MB
12	1	ZARROS P
13	5	ZARROS PN
14	1	ZARROUATI G
15	1	ZARROUATI M

Some: numbers / Continue: Y / None: N

Query/Command : 5

\*\* SS 5 : Results 9

Continue: Y / N

Query/Command : prt 1-9 fu

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1 / 9 INSPEC (1 / 9) - ©INSPEC

- AN** - 7275043
- ABN** - B2002-06-6260-024
- TI** - Error-free 2.5 Gbit/s unrepeated transmission over 570 km.
- AU** - Le Roux P; Brandon E; Blondel JP; Labrunie L; Toullier D; Zarris G
- OS** - Submarine Networks Div.; Alcatel; Nozay; France
- SO** - ECOC 2000. 26th European Conference on Optical Communication, Pt. vol.4, pp. 45-47 vol.4, Published: Berlin, Germany, 2000, 4 vol.(146+192+312+122) pp.
- PU** - VDE Verlag
- CP** - Germany
- DT** - PA (Conference Paper)
- LA** - English
- NU** - ISBN 3800725673
- PY** - 2000
- CONF** - ECOC 2000. 26th European Conference on Optical Communication, Munich, Germany, 3-7 Sept. 2000
- AB** - The longest unrepeated transmission ever demonstrated has been achieved by using forward error correction, remotely pumped post- and pre-amplifiers and in-line Raman noise filtering which has enabled the launch of 4 watts of 1480 nm pump power. (5 Ref.)
- IT** - forward error correction; optical fibre amplifiers; optical fibre communication; optical pumping
- ST** - error-free unrepeated transmission; remotely pumped post-amplifiers; pre-amplifiers; pump power; in-line Raman noise filtering; 4 W; 2.5 Gbit/s; 570 km; 1480 nm
- TC** - PR (Practical); XP (Experimental)
- CC** - B6260 Optical links and equipment; B4320F Fibre lasers and amplifiers
- NM** - power 4.0E+00 W; bit rate 2.5E+09 bit/s; distance 5.7E+05 m; wavelength 1.48E-06 m
- CPR** - Copyright 2002, IEE

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*2 / 9 INSPEC (2 / 9) - ©INSPEC*

- AN** - 6650511
- ABN** - B2000-08-6260-018
- TI** - Error-free 32\*10 Gbit/s unrepeated transmission over 450 km.
- AU** - Blondel JP; Brandon E; Labrunie L; La Roux P; Toullier D; Zarris G
- OS** - Submarine Networks Div.; Alcatel; Nozay; France
- SO** - 25th European Conference on Optical Communication. ECOC '99 Conference, Pt. Suppl., pp. 34-35 Suppl., Published: Paris, France, 1999, 2 vol.(xxxiii+463+322+65) pp.
- PU** - Soc. Electr. Electron
- CP** - France
- DT** - PA (Conference Paper)
- LA** - English
- NU** - ISBN 2912328128
- PY** - 1999
- CONF** - 25th European Conference on Optical Communication. ECOC '99 Conference, Nice, France, 26-30 Sept. 1999, Sponsored by: Minstr. Educ. Nat., Minstr. Econ. Finances et de Ind
- AV** - Available as: Also available on CD-ROM in PDF format
- AB** - Unrepeated transmission of 32 channels at 10 Gbit/s is demonstrated over 450 km. A new technique of in-line filtering is used to launch 6-Watt of 1480-nm pump power towards remote post- and pre-amplifiers. Combined with the use of forward error correction which allows error-free operation, this leads to the longest 320 Gbit/s unrepeated transmission demonstrated. (3 Ref.)
- IT** - forward error correction; optical fibre communication; optical pumping; telecommunication channels
- ST** - error-free Gbit/s unrepeated transmission; in-line filtering; nm pump power; post-amplifiers; pre-amplifiers; error-free operation; Gbit/s unrepeated transmission; 10 Gbit/s; 320 Gbit/s; 450 km; 4 W; 1480 nm
- TC** - PR (Practical); XP (Experimental)
- CC** - B6260 Optical links and equipment;  
B6120B Codes;  
B6110 Information theory
- NM** - bit rate 1.0E+10 bit/s; bit rate 3.2E+11 bit/s; distance 4.5E+05 m; power 4.0E+00 W; wavelength 1.48E-06 m
- CPR** - Copyright 2000, IEE

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*3 / 9 INSPEC (3 / 9) - ©INSPEC*

- AN** - 6557247
- ABN** - A2000-10-8715M-013
- TI** - Alpha-particle-induced changes in the stability and size of DNA.

**AU** - Georgakilas AG; Haveles KS; Sophianopoulou V; Sakelliou L; Zarris G; Sideris EG

**OS** - Inst. of Biol.; Nat. Center for Sci. Res.-Demokritos; Athens; Greece

**SO** - Radiation Research, vol.153, no.3, pp. 258-262, March 2000

**PU** - Radiat. Res. Soc

**CP** - USA

**DT** - J (Journal Paper)

**LA** - English

**JC** - RAREAE

**NU** - ISSN 0033-7587

**PY** - 2000

**CPN** - 0033-7587/2000/ \$5.00

**SI** - 0033-7587(200003)153:3L.258:APIC;1-0

**AB** - The effect of alpha -particle radiation on the thermal stability and size of calf thymus DNA molecules in deoxygenated aqueous solutions was investigated by thermal transition spectrophotometry, pulsed-field gel electrophoresis, and standard agarose gel electrophoresis. The thermal transition of DNA from helix to coil was studied through analysis of the UV A260 absorbance. The results obtained for alpha particles of mean LET of 128 keV mu m-1 reveal a dual dose response: a tendency for thermal stability of the DNA helix at "low" doses, followed by an increasing instability at higher doses. The same phenomenon was observed for the mean molecular weight of DNA molecules exposed to alpha particles. The results reported for alpha particles in the low-dose region of 0-16 Gy are consistent with a previous hypothesis of interand intramolecular interactions of a covalent character in gamma -irradiated DNA molecules in the dose region of 0-4 Gy. (22 Ref.)

**IT** - alpha-particle effects; biological effects of ionising particles; biological techniques; biomolecular effects of radiation; biothermics; DNA; electrophoresis; molecular weight; thermal stability

**ST** - alpha -particle radiation; calf thymus DNA molecules; size; deoxygenated aqueous solutions; thermal transition spectrophotometry; pulsed-field gel electrophoresis; standard agarose gel electrophoresis; thermal transition; intermolecular interactions; coil; ultraviolet A260 absorbance; mean molecular weight; dual dose response; DNA helix; intramolecular interactions; covalent character; gamma -irradiated DNA molecules; 0 to 16 Gy

**TC** - XP (Experimental)

**CC** - A8715M Interactions with radiations at the biomolecular level;  
A8780 Biophysical instrumentation and techniques;  
A8750G Biological effects of ionizing radiations (UV, X-ray, gamma-ray; particle radiation effects);  
A8716 Biothermics

**NM** - radiation absorbed dose 0.0E+00 to 1.6E+01 Gy

**CPR** - Copyright 2000, IEE

- CC** - A2890 Other topics in nuclear engineering and nuclear power studies;  
A6180M Channelling, blocking and energy loss of particles
- MF** - U/el; H2O/bin H2/bin H/bin O/bin; Th/el
- NM** - electron volt energy 6.0E+08 to 2.75E+09 eV

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6 / 9 INSPEC (6 / 9) - ©INSPEC

- AN** - 4449829
- ABN** - A9317-8760M-007
- TI** - Dosimetric calculations of alpha particles incident on water.
- AU** - Zarris G; Angelopoulos A; Perris A; Sakelliou L; Sideris EG
- OS** - Dept. of Phys.; Athens Univ.; Greece
- SO** - Physics in Medicine and Biology, vol.38, no.5, pp. 643-649, May 1993
- CP** - UK
- DT** - J (Journal Paper)
- LA** - English
- JC** - PHMBA7
- NU** - ISSN 0031-9155
- PY** - 1993
- AB** - Analytical expressions for the stopping power and the range of 100 keV-10 MeV alpha particles, in liquid and vapour phases of water, were developed based on the available experimental data. The validity of the stopping power additivity is investigated and the derived range-energy relations are used for microdosimetric calculations. (19 Ref.)
- IT** - alpha-particle detection and measurement; dosimetry
- ST** - analytical expressions; alpha particles; range; liquid; vapour phases; water; stopping power additivity; range-energy relations; microdosimetric calculations; 100 keV to 10 MeV
- TC** - XP (Experimental)
- CC** - A8760M Radiation dosimetry
- NM** - electron volt energy 1.0E+05 to 1.0E+07 eV

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7 / 9 INSPEC (7 / 9) - ©INSPEC

- AN** - 4295872
- ABN** - A9302-8760M-003
- TI** - Dose rate distribution around  $^{60}\text{Co}$ ,  $^{137}\text{Cs}$ ,  $^{198}\text{Au}$ ,  $^{192}\text{Ir}$ ,  $^{241}\text{Am}$ ,  $^{125}\text{I}$  (models 6702 and 6711) brachytherapy sources and the nuclide  $^{99}\text{Tcm}$ .
- AU** - Sakelliou L; Sakellariou K; Sarigiannis K; Angelopoulos A; Perris A; Zarris G
- OS** - Dept. of Phys.; Athens Univ.; Greece
- SO** - Physics in Medicine and Biology, vol.37, no.10, pp. 1859-1872, Oct. 1992
- CP** - UK
- DT** - J (Journal Paper)
- LA** - English
- JC** - PHMBA7
- NU** - ISSN 0031-9155
- PY** - 1992
- CPN** - 0031-9155/92/101859+14 \$04.50
- AB** - Simple analytical functions derived from point source Monte Carlo calculations on the combined attenuation and scatter factor,  $B \exp(-\mu r)$ , for  $^{60}\text{Co}$ ,  $^{137}\text{Cs}$ ,  $^{198}\text{Au}$ ,  $^{192}\text{Ir}$ ,  $^{241}\text{Am}$ ,  $^{125}\text{I}$  (models 6702 and 6711) brachytherapy sources and the nuclide  $^{99}\text{Tcm}$ , for water spherical geometries of radii  $R=15$  and  $20$  cm are presented. Results for the broadly used  $^{60}\text{Co}$ ,  $^{137}\text{Cs}$ ,  $^{198}\text{Au}$  and  $^{192}\text{Ir}$  brachytherapy sources can be compared directly and found in excellent agreement with the widely accepted data of Meisberger et al in the limited distance range for which the latter are valid. The present authors' data, however, can be used with high accuracy outside this distance range. Dose rate distributions are proposed in accordance with the recommendations for calibration of the brachytherapy sources in terms of reference air kerma rate and were found to be in good agreement with data available in the literature. (40 Ref.)
- IT** - americium; caesium; calibration; cobalt; gold; iodine; iridium; Monte Carlo methods; radiation therapy; radioisotopes; technetium
- ST** - model 6702; model 6711; dose rate distributions; brachytherapy sources; point source Monte Carlo calculations; combined attenuation and scatter factor; water spherical geometries; reference air kerma rate;  $^{60}\text{Co}$ ;  $^{137}\text{Cs}$ ;  $^{198}\text{Au}$ ;  $^{192}\text{Ir}$ ;  $^{241}\text{Am}$ ;  $^{125}\text{I}$ ;  $^{99\text{m}}\text{Tc}$
- TC** - TM (Theoretical/Mathematical)
- CC** - A8760M Radiation dosimetry;  
A8760J X-rays and particle beams (medical uses);  
A8770G Patient care and treatment
- MF** - Tc/el; Co/el; Cs/el; Au/el; Ir/el; Am/el; I/el

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8 / 9 INSPEC (8 / 9) - ©INSPEC

- AN** - 3954560
- ABN** - A91112554
- TI** - Accurate Monte Carlo calculations of the combined attenuation and build-up factors, for energies (20-1500 keV) and distances (0-10 cm) relevant in brachytherapy.
- AU** - Angelopoulos A; Perris A; Sakellariou K; Sakelliou L; Sarigiannis K; Zarris G
- OS** - Dept. of Phys.; Athens Univ.; Greece
- SO** - Physics in Medicine and Biology, vol.36, no.6, pp. 763-778, June 1991
- CP** - UK
- DT** - J (Journal Paper)
- LA** - English
- JC** - PHMBA7
- NU** - ISSN 0031-9155
- PY** - 1991
- CPN** - 0031-9155/91/060763+16 \$03.50
- AB** - The combined build-up and attenuation factor,  $B \exp(-\mu_r)$ , of point isotropic photon sources in a water medium has been calculated using the Monte Carlo method, for energies (20-1500 keV) and distances (1-10 cm) relevant in brachytherapy. For the transport of photons and electrons, up-to-date and self-consistent total, partial and differential cross sections were used. The influence of coherent (Rayleigh) and incoherent (Compton) scattering, as well as the effects of the source and medium geometries on the calculations, were investigated in detail and it was found that these effects can lead to significant deviations from published data, especially at low energies and/or large distances from the sources. (61 Ref.)
- IT** - Monte Carlo methods; radiation therapy
- ST** - attenuation factors; source geometries; coherent Rayleigh scattering; incoherent Compton scattering; self consistent total cross sections; partial cross sections; Monte Carlo calculations; build-up factors; distances; brachytherapy; point isotropic photon sources; water medium; photons; electrons; differential cross sections; medium geometries; energies; 20 to 1500 keV
- TC** - XP (Experimental)
- CC** - A8760J X-rays and particle beams (medical uses)
- NM** - electron volt energy 2.0E+04 to 1.5E+06 eV



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9 / 9 INSPEC (9 / 9) - ©INSPEC

**AN** - 3542101

**ABN** - A90023898

**TI** - Specific primary ionisation for electrons, protons and alpha particles incident on water.

**AU** - Perris A; Zarris G

**OS** - Dept. of Radiol.; Athens Univ.; Greece

**SO** - Physics in Medicine and Biology, vol.34, no.8, pp. 1113-1118, Aug. 1989

**CP** - UK

**DT** - J (Journal Paper)

**LA** - English

**JC** - PHMBA7

**NU** - ISSN 0031-9155

**PY** - 1989

**CPN** - 0031-9155/89/081113+06 \$02.50

**AB** - In order to correlate damage induced by ionising radiation in biological systems on the cellular or subcellular level with physical parameters characterising the radiation, extensive use has been made of the parameter linear energy transfer (LET). Its main limitation is that depending on the ionising particle and its energy, a substantial amount of the particle's energy is not deposited locally but it is carried away from the track of the particle by energetic secondary electrons called delta rays. A physical parameter which does not suffer from this limitation is the number of primary ionisations produced by an ionising particle per unit pathlength in an irradiated medium. This parameter is called specific primary ionisation (SPI) and its usefulness in reporting results of radiobiological experiments has already been pointed out (Cannel and Watt 1985, Watt 1985). The author calculates SPI in water for particles that are used in radiobiological experiments, using recent cross section data. The results are presented in tables so that they can be easily used by interested radiobiologists. (7 Ref.)

**IT** - alpha-particle effects; biological effects of ionising particles; electron beam effects; proton effects

**ST** - cellular level; cross sections; electrons; protons; alpha particles; damage; biological systems; subcellular level; parameter linear energy transfer; energetic secondary electrons; delta rays; specific primary ionisation; radiobiological experiments; H2O

**TC** - TM (Theoretical/Mathematical); XP (Experimental)

**CC** - A8750G Biological effects of ionizing radiations (UV, X-ray, gamma-ray; particle radiation effects)

**MF** - H2O/bin H2/bin H/bin O/bin

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